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ABSTRACT

The general report has summarized the development of an operational program planning and evaluation component called Operation Guidance, which is part of the Career Planning Support System (CPSS). (The CPSS, a systematic approach to improving high school career planning programs, has addressed itself to the critical career guidance deficiencies of career development of minority youth, career development of women, program planning and evaluation, and the transition from school to work.) Operation Guidance will provide a package of manuals, procedural guides, audiovisual aids, and inservice materials that are designed to serve as a tool with which individual high schools can design, implement, and evaluate their own career planning programs. Key leaders designated for the program are the school principal and the project coordinator, who will be supported by others within the school and the community. Other aspects covered include procedures for organizing faculty, students, and community members to accomplish program development tasks. Short- and long-range outcomes and the school's cost are also discussed. A national field test of the product is scheduled from September 1974 to June 1976, with the entire CPSS materials scheduled for availability in late 1976. (EA)

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Research and Development Series No. 103

THE PRODUCT ENGINEERING OF A SYSTEM FOR UPGRADING HIGH SCHOOL CAREER PLANNING PROGRAMS

General Report

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Richard P. Coatney

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Career Planning Support System

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THE CENTER MISSION STATEMENT

The Center for Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning and preparation. The Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

PREFACE

The challenge to assist youth in gaining the skills and knowledge to plan and execute meaningful careers is a primary concern of the educational community, particularly high schools. To help meet the challenge, The Center has been developing and testing a systems approach for high schools to use in delivering career development services to youth. The Career Planning Support System has two major parts: operational planning and evaluation procedures, and innovative career guidance strategies for special populations. The development of the planning and evaluation procedures (referred to as "Operation Guidance") is the focus of this report.

The intent of this general version of the report is to describe the process and results of the development of the product for career education practitioners at all levels who are interested in a systems approach to efficiently delivering career development services to students. (The technical version, which is available from The Center, is written as a case study for product developers.)

We particularly appreciate the contributions of the participants in the six schools who helped make this a realistically developed and viable product. The many people to whom special appreciation is due are listed elsewhere in this report, but I would like to acknowledge here the contribution of the work unit staff headed by Warren N. Suzuki, and assisted by Richard P. Coatney, Harry N. Drier, and Paul E. Shaltry; and to Robert E. Campbell, program director, Career Planning Support System.

Robert E. Taylor
Director

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I. INTRODUCTION

The Problem

The process of developing a satisfying career is a complex undertaking that young people, in particular, tend to stumble through at great expense to themselves and society. Many youth are inadequately prepared for the life roles they will assume in the community (National Advisory Council for Vocational Education, 1972; Herr, 1971). Thus, despite its advances, the American educational system today is being harshly criticized for shortcomings in preparing adaptably useful and employable citizens. An increasing number of studies have shown that an extremely high percentage of high school graduates are not adequately prepared to earn a living, nor are they prepared for further education.

The problem has long-range implications. Because of the changing nature of our society and the job market, young people not only need to make career decisions for their first years after high school but also must be well enough prepared to plan for perhaps several job changes throughout their lives. They need to know how to cope with change—to know the importance of and how to continue to learn and be able to make and implement a series of career decisions compatible with their own potential and desires.

Traditionally, the major responsibility of helping students with career planning has been delegated to the schools. Furthermore, the primary focus for delivering career planning assistance to students, traditionally, has been through guidance programs, more specifically, counselors. However, limited national assessments of career guidance programs, such as those conducted by Herr (1968), Ehrle (1969), Rosen (1969), and Ginzberg (1971) have indicated that career guidance programs have been neither effective nor efficient.

Based on a national study, Campbell et al. (1968) concluded that the root problem with career guidance programs appears to be that high schools attempt to offer more career guidance services than they can effectively support with available and realistically obtainable resources. The study also indicated that only a few school programs have implemented recent innovations in career guidance methods and techniques. If student needs for career planning assistance are to be satisfied, then high schools should have career planning programs that have been developed both systematically and realistically.

At this time, it is highly doubtful that a single, standardized program could be developed to meet the requirements of widely varied local conditions and student populations. However, each high school and/or school system should be able to develop a career planning program that effectively and efficiently responds to local conditions and unique student populations by applying systems technology.

Although career guidance is only a part of a troubled educational system, educators recognize its potential for becoming an effective means of helping all students in an important way. There appears to be a definite climate for positive change.

Career Planning Support System

The Center for Vocational Education (CVE) at The Ohio State University has undertaken the development of a systematic approach to improving high school career planning programs. This program, called the Career Planning Support System (CPSS), is sponsored by the National Institute of Education (NIE).

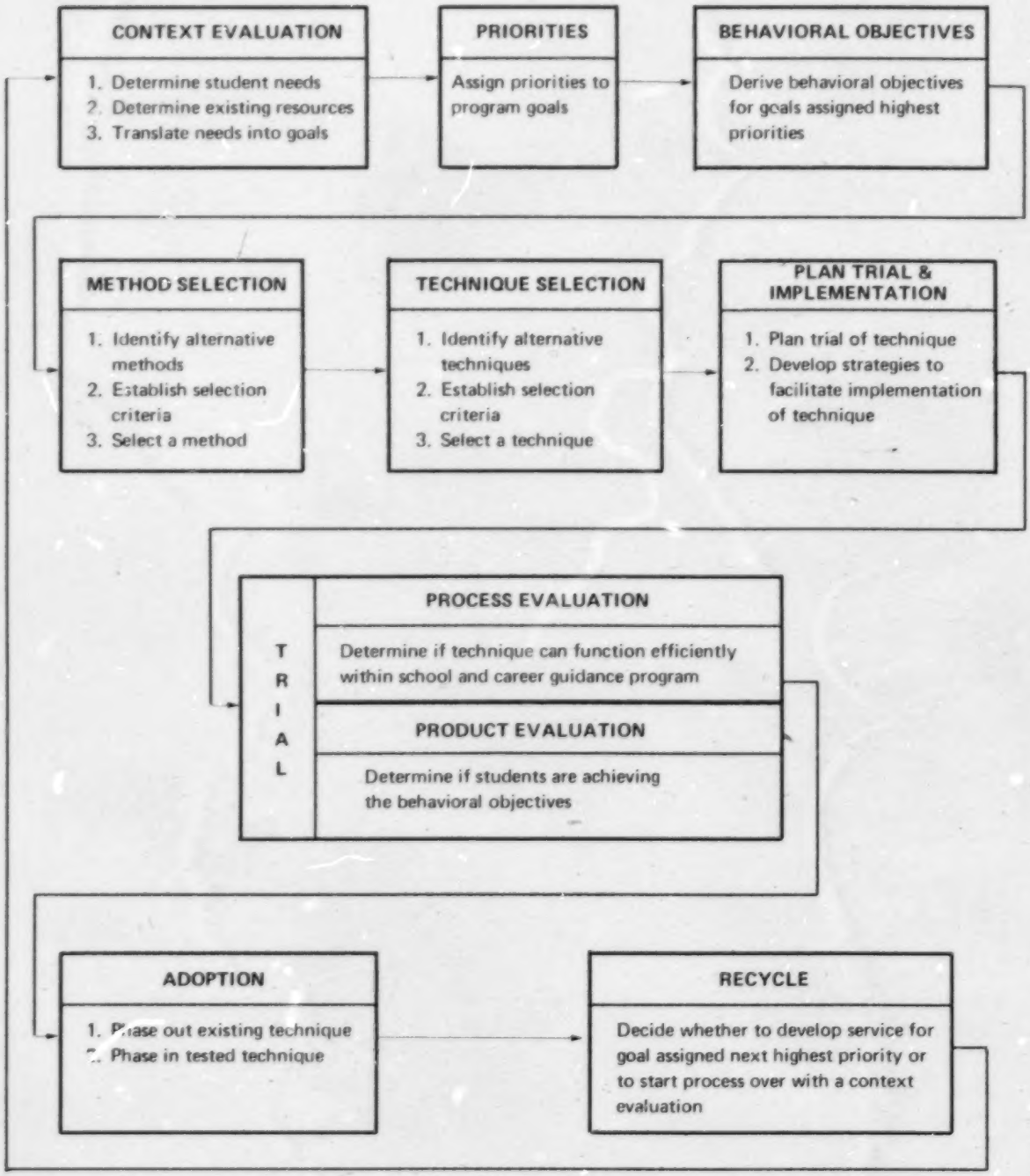
The construction of the Career Planning Support System requires the progressive contribution of four parallel strands of research and development. Each strand addresses a critical career guidance deficiency not being adequately addressed by researchers and developers. The four strands are: (1) the career development of minority youth, (2) the career development of women, (3) program planning and evaluation, and (4) the transition from school to work.

Procedural Model

This report deals with one aspect of the CPSS, the development of an operational program planning and evaluation component. The antecedents of this effort are based on a national survey and report of the status of guidance (Campbell et al., 1968), and a feasibility study that included the development of a procedural model (Campbell et al., 1971). It is from the procedural model that the product engineering phase took its direction in building an operational product for high schools. The procedural model is graphically presented in Figure 1 and was initially designed for use at all levels of public education.

Parts of the procedural model were subjected to a simulated trial at a comprehensive, urban high school. The procedural model per se, however, was not readily usable by school personnel since application of the model required specialized knowledge of and skills in a variety of fields, such as career development theory, measurement, evaluation, and survey research to name a few.

Figure 1. Procedural Model for Developing Career Guidance Programs*


CONTEXT EVALUATION
1. Determine student needs
2. Determine existing resources
3. Translate needs into goals
PRIORITIES
Assign priorities to program goals
BEHAVIORAL OBJECTIVES
Derive behavioral objectives for goals assigned highest priorities
METHOD SELECTION
1. Identify alternative methods
2. Establish selection criteria
3. Select a method
TECHNIQUE SELECTION
1. Identify alternative techniques
2. Establish selection criteria
3. Select a technique
PLAN TRIAL & IMPLEMENTATION
1. Plan trial of technique
2. Develop strategies to facilitate implementation of technique
TRIAL
PROCESS EVALUATION
Determine if technique can function efficiently within school and career guidance program
PRODUCT EVALUATION
Determine if students are achieving the behavioral objectives
ADOPTION
1. Phase out existing technique
2. Phase in tested technique
RECYCLE
Decide whether to develop service for goal assigned next highest priority or to start process over with a context evaluation

*Campbell, Suzuki, Gabria, Jr., 1972.

II. PRODUCT DEVELOPMENT

Approach to Product Engineering

The product engineering phase was conducted from February 1, 1971 to September 30, 1974. During this time the developers sought to build a relatively inexpensive package that could be used in comprehensive high schools across the country. Further, it was intended that the resulting package of materials could be used without the help of the developers or others acting as consultants due primarily to the potential drain that the use of external assistance could make on the already hard-pressed resources of high schools.

During the product engineering, the procedural model was implemented through the development of detailed procedures and supporting materials which could be used by comprehensive high schools. During the initial prototype development, seven major parts containing procedural guides and instructional manuals following guidelines in the procedural model were developed. Each part was then subjected to a series of evaluation and revision cycles that included conducting a field trial of a module at a comprehensive high school; conducting a second field trial of the module at another high school; and again revising the module. This series of sequential, overlapped procedures comprised formative product engineering

The product was then subjected to summative product engineering. Essentially, this would be a trial of the entire system of seven interrelated modules* at four comprehensive high schools. Evaluative data concerning the functioning of the entire system was collected and analyzed. Figure 2 represents the general developmental process.

Methods of Evaluation

Several approaches were taken to evaluate the product elements as they were tried. Memoranda and activity logs were generated by six field associates who were on-site monitors, as well as time logs which were designed to account for the amount of time and manpower spent on a particular task. Budget reports documented monetary expenditures, especially local contributions made by each field site.

Site personnel were encouraged to write their comments directly on the product materials as a means of practical evaluation. Interviews with school personnel by CVE staff members, who frequently traveled to the field sites, and the field associates provided yet another evaluative dimension. Where feasible, school project meetings were openly recorded and analyzed by the field associates.

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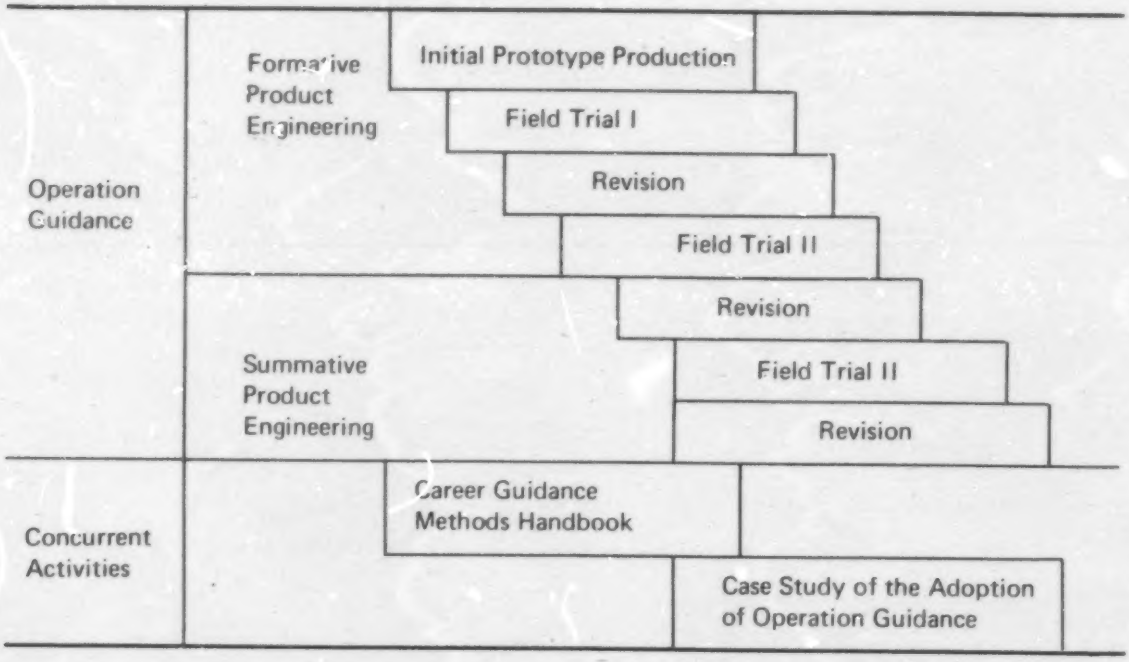
*In the final revised product, the term "module" was not used. Rather, the tasks were organized by function and assigned the name of that function, e.g., Resource Assessment, Data Collection and Tabulation. In all, there were eight functions including orientation/organization.

Figure 2. General Product Engineering Phases and Concurrent Activities



Evaluative information was stored at CVE and served as a basis for revision of each product element. Over the three and a half year period, product elements underwent one to four revisions prior to field testing which began in October 1974.

Also, during the project engineering phase the validity of the development of the product was checked by external reviewers who examined the results of the work in the field trial schools. The developers also reviewed each product element generated from each school. Finally, an adjunct diffusion study was conducted by CVE's Diffusion Program staff to assess the degree to which each of the schools assimilated this educational innovation (Kester and Howard, 1975). This study provided the developers insight into the factors that can hinder or help the adoption of the product.

Product Engineering Results

Field operation of the product engineering phase concluded formally on June 30, 1974. Five of the six schools had, by June, developed student-oriented career planning activities known as career development units. Two of the five schools had firm unit proposals which were delayed being implemented because of organizational constraints.

Each of the six schools progressed through the materials at a speed commensurate with their resources, abilities, and unique characteristics. In some cases, the developmental nature of the materials and local conditions made it necessary to adjust the design of the field trials. For example, the developers found it necessary to switch an original formative engineering site to a summative site because materials provided to the summative engineering sites enabled the latter to progress more rapidly than the former. Thus, practicality dictated the latter become a formative site.

In summary, the development of the Operation Guidance materials was based on realistic trial and evaluation in the high school setting. The efforts in each of the schools provided not only valuable information for product development, but generated helpful career planning activities for students. Most importantly, each school developed a data based master plan for systematic delivery of career planning services based on local needs and resources.

III. PRODUCT DESCRIPTION

The product engineering phase generated a full complement of interrelated materials designed primarily for use in comprehensive high schools but which, with modification, could be used in all the nation's high schools. What follows is a brief description of the product, an overview of its process, and a description of how it works in the school setting.

An Innovation Package

As an educational innovation, Operation Guidance sets the climate for improving career planning programs by providing a systematic yet practical set of procedures for improvement. Its process encourages administrators, teachers, parents, students, and community members to participate in defining local career development needs, restructuring priorities, and developing ways to help students with their career development skills. Operation Guidance enables systematic delivery of career planning services to students. Although used successfully in government and industry, the systems approach is relatively new to the field of education. The method enables a school to organize career development information and strategies into a manageable structure based upon current career development needs of students (Campbell et al., 1971).

While Operation Guidance does not necessarily prescribe program content, it serves as a tool with which individual schools can design, implement, and evaluate their own career planning programs. The package includes:

1. Guides detailing procedures for collecting student, faculty, graduate, and parent data, deriving program goals, formulating behavioral objectives, creating career development units (CDUs), and evaluating the career planning program.

2. Survey questionnaires.

3. Manuals that provide instruction for performing technical tasks.

4. Supporting references (e.g., a handbook of career guidance methods).

5. Forms for recording decisions, findings, etc.

6. Synchronized audiovisual presentations for providing introductory information to the total package and its major tasks.

7. A comprehensive preservice and in-service staff development program based on simulation.

The materials are written so that a school may use the materials as fast as it deems necessary. Upgrading a school's program involves careful planning. Tangible student activities, however, usually occur during the first school year of using Operation Guidance.

Operation Guidance, however, is more than a package of manuals, procedural guides, audio-visuals, and in-service materials. It can be a formula for joining people into a productive, effective community force. The purpose of creating such a force is to help students with their career decision-making by developing meaningful instructional and counseling methods that have positive and measurable effect on the student. Operation Guidance is compatible with existing high school career planning programs. Rather than ignoring current efforts, Operation Guidance provides a framework for making existing programs more effective if necessary.

Lasting and meaningful change rarely comes easily and quickly, and change resulting from the use of Operation Guidance is no exception. Operation Guidance is a continuous, long-term process of systematic improvement. It is designed to keep pace with changes in the school, students, and the local and national community.

IV. HOW A SCHOOL ORGANIZES

The success of bringing about change in a school is dependent on the cooperation of individuals. Operation Guidance is no different. To facilitate this cooperation, the materials suggest roles and tasks to be assumed by people in the school and in the community. While roles are suggested, they are flexible as to how a school wants to fill them. The foundations of the CPSS calls for differentiated staffing in career planning activities in the school. Certainly counselors play a key role but the overall effort can be enriched by judiciously mixing the skills and talents of many people both within the school and in the school's greater community. The following is a brief description of the key roles in an Operation Guidance project.

The two leadership roles called for by the program rest with the principal and the project coordinator. The principal is the key person in establishing the commitment that a school and community make toward the successful conduct of the Operation Guidance project. As the chief executive officer, the principal is ultimately responsible for all that happens in the school, including the success or failure of an Operation Guidance project. In addition to the leadership shown through overt commitment to the project, however, the degree to which a principal directly manages the Operation Guidance project is his/her own decision.

In addition to the principal, at least one other person needs to have a firm grasp of the scope and intent of Operation Guidance. It is recommended that a person be assigned, at least half-time, with the responsibility of coordinating and monitoring the development of the project. This coordinator serves as the link between the principal and project activities.

Several groups are formed on both a temporary and permanent basis. The following is a description of committees, roles, and functions.

Steering Committee

The Steering Committee composed of teachers, counselors, and students, has three functions: (1) managing the project, (2) serving as a major decision-amking body, and (3) acting as representatives of the school population.

As a managerial body, the Steering Committee is responsible for coordinating the many activities that are part of Operation Guidance. Its duties include making certain that resources needed to carry out activities are available. It monitors the work of task forces to be certain that tasks are completed appropriately and in as short a time as possible. It also serves the function of coordinating tasks performed by these different work groups. The committee has the responsibility of storing all data and products of the project in such a manner that information may be located easily as it is needed.

The Steering Committee is a major decision-making body in Operation Guidance. It has the responsibility of assuring that the program, as planned, reflects the career development needs of all

students in the school. The Steering Committee writes goals for the program. It decides the order in which goals will be carried out, based on survey information collected from the school and community. The Steering Committee reviews behavioral objectives and plans for career development activities that are made to achieve these goals to be certain that they are complete, accurate, and appropriate. The committee submits to the principal recommended goals, behavioral objectives, and plans for career development activities.

There are usually five to seven members of the Steering Committee in addition to its chairperson, depending on the number of counselors in the school. As representatives of the school, Steering Committee members are encouraged to seek out others' ideas and opinions as they work on the tasks described above.

Task Forces (General)

Task forces are work groups usually composed of students, teachers, and counselors. These groups are formed on a temporary basis to perform certain duties in Operation Guidance. When their tasks are completed, the work groups disband.

Task forces are formed to collect and tabulate survey data, to collect information about the school and community, and to write behavioral objectives for program goals. The number of people on a task force varies depending on the activity to be completed. The task forces suggested in Operation Guidance are composed as follows:

Data Collection and Tabulation Task Force

- Chairperson: It is suggested that the Steering Committee chairperson act as the needs assessment leader and head this task force. Duties include initiating and monitoring the activities of the various task force teams during data collection, receiving and storing data collected from surveys, assigning data tabulation tasks to team members and monitoring their work during data tabulation, and properly storing the surveys and end products for safe keeping when all work has been completed.

- Six or seven faculty/staff members: Their duties include helping to prepare and collect surveys and overseeing the process of transferring information from surveys to appropriate data summary tables.

- Fourteen to sixteen students: Their duties include helping to prepare and collect surveys and transferring survey information to appropriate data summary tables under the supervision of one of the above faculty/staff members.

School and Community Description Task Force

- Chairperson: Duties include initiating and monitoring the tasks involved in the collection of background information and available resources in the school and community, and keeping an up-to-date record of the resources available to Operation Guidance and how they are used.

- Two faculty/staff members and four student members: Their duties include collecting information about the characteristics of the school and community, and listing resources available to Operation Guidance from the school and community. This information is recorded and stored in a loose-leaf binder entitled Career Development Data.

Behavioral Objectives Task Force

- Chairperson: It is suggested that the chairperson be skilled in the writing of behavioral objectives. His/her duties include initiating and monitoring the training and activities of the members of this task force and assisting with the writing of behavioral objectives for learning activities that are to be developed and implemented.

- Five faculty/staff members: It is suggested that these individuals, if possible, be knowledgeable in the writing of behavioral objectives. Their duties include becoming familiar with the format of behavioral objectives recommended by the materials and assisting with the writing of behavioral objectives for career development learning activities that are to be developed and implemented.

Method Analysis Specialists

Two individuals are selected to serve as method analysis specialists. It is suggested that one of the two specialists be a member of the Steering Committee. These individuals become familiar with current career guidance methods by studying all available references. Their main responsibility then involves meeting with faculty members serving as Career Development Unit coordinators and advisors to assist them with selecting appropriate and effective methods for use in achieving each of the behavioral objectives written for their CDUs. Although they may be inactive for short periods of time, these specialists will be called upon to assist with method selection for each CDU unit that is developed over time. They may also be asked to assist in revising methods used in Career Development Units.

Career Development Unit Coordinators and Advisors

Learning activities (Career Development Units) are designed to help students acquire the skills, knowledge, or attitudes necessary to achieve each goal written for the career development program. The people responsible for developing these activities are called Career Development Unit (CDU) coordinators and advisors.

CDU Coordinator. The principal and Steering Committee should select an individual with expertise in the subject matter related to the goal or goals to be implemented. Primary responsibility for planning these learning activities for the goal rests with this person. The duties of this individual include:

- Becoming familiar with the school and community characteristics identified in the Career Development Data binder.

- Writing the primary behavioral objective, called a criterion behavioral objective, for the goal with the assistance of behavioral objective specialists.

- Working with CDU advisors (if any) to derive the remaining behavioral objectives, called enabling behavioral objectives, needed to achieve the goal with the assistance of behavioral objective specialists.

- Working with the resource assessment leader, method analysis specialists, and CDU advisors to identify appropriate methods and resources needed to implement a Career Development Unit.

- Conducting evaluations of a Career Development Unit.

- Possibly serving as a CDU advisor and implementing a Career Development Unit.

CDU Advisors. If it is decided that the Career Development Unit should be implemented in several areas or classes so that as many students as possible will be exposed to the activities involved or in an area in which the coordinator does not have responsibility, CDU advisors should be nominated to help implement the CDUs. These individuals would work directly with the students, providing learning activities that will enable them to achieve the behavioral objectives and goals defined in the CDU. Their specific duties involve:

- Working with the CDU coordinator and Behavioral Objective Task Force members to derive behavioral objectives for the assigned goal.

- Together with the resource assessment leader and method analysis specialists, identifying appropriate methods and resources needed to implement the Career Development Unit.

- Organizing equipment, resource personnel, and materials needed for the activities involved in the Career Development Unit.

- Implementing the Career Development Unit.

- Evaluating student achievement of the behavioral objectives written for the Career Development Unit.

Advisory Committee

The Advisory Committee is composed of five to nine representatives of the community. This group acts as a liaison between the school and the community and provides recommendations concerning the planning of the career development program. The Advisory Committee also serves as a source of information about the students' community environment. The suggested composition of the Advisory Committee is as follows:

Chairperson. It is suggested that the principal act as chairperson of this committee. His/her duties would include presiding over meetings of the Advisory Committee.

Executive secretary. It is suggested that the Steering Committee chairperson serve as executive secretary of the Advisory Committee. His/her duties would include notifying members of meeting dates, keeping record of the proceedings of Advisory Committee meetings, and carrying on correspondence with the members of the groups as needed.

Five to nine representatives. The duties of representatives of the business and educational community, governmental and civic groups, and parents include providing information to the Steering Committee based on their knowledge and experience, reviewing outputs of the program, such as goals and behavioral objectives, and giving recommendations for their improvements.

A school may already have several advisory committees working in different areas. It may facilitate the coordination of and communication between activities if members of some of those committees are on the Advisory Committee for Operation Guidance. Therefore, it may be beneficial to consider individuals serving on other advisory committees when identifying and selecting members for the Operation Guidance Advisory Committee.

If at all possible, the Advisory Committee should have at least one each of the following types of individuals as members:

- Executive officer of a business-industrial concern or organization.
- Executive officer of a labor organization or union.
- Executive officer of the school's parent or parent-teacher association.
- Director of guidance and/or career education (or his/her representative) for the school district or county.
- Representative of one of the major community action groups.

Other types of individuals that may be appropriate for membership on the Advisory Committee are as follows:

- Faculty member of a university or college, preferably a specialist in career guidance and/or education.
- Representative of the state department of education's agency concerned with career guidance and/or education.
- Director of vocational education for your school district or the state department of education of his/her representative.
- Representative of state department of labor or manpower of the state employment service.

- Representative of a local office of the U.S. Department of Labor or Health, Education, and Welfare.

- Representative of a junior high school or middle school from which students transfer to the high school.

Staff Development

Staff development is an integral part of the product. The various subtasks are explained and constructed in a semi-programmed instructional format. This way a task may be executed and, at the same time, the performer can be learning, for example, survey research techniques. Another mode of staff development is used for special skills such as writing technically sound program goals and behavioral objectives. Staff development materials are also provided so a simulation of the project can occur before actually implementing the project in the school.

V. THE PROCEDURAL PROCESS

The Operation Guidance product details procedures for organizing faculty, students, and members of the community to accomplish program development tasks. These tasks are: (1) identifying student needs and resources; (2) stating, ordering, and selecting program goals; (3) deriving behavioral objectives; (4) developing and selecting career development methods; (5) planning and implementing career planning activities; and (6) evaluating the effectiveness and efficiency of the program. See Figure 3, Operation Guidance Sequence Flow.

Identifying Needs and Resources

Survey questionnaires are administered to students to determine their career development needs. More general questionnaires are also completed by parents, faculty, and recent graduates of the school, asking their opinions of the type of career development areas that the high school should emphasize. This information enables the school to identify the strengths and weaknesses of its career planning program.

While surveys are being administered and tabulated, a task force is collecting information about the school and community that might be of value to the career development program. This information includes a list of resources (people, space, materials, equipment, and funds) that could be used for career planning activities designed to meet the needs of the students.

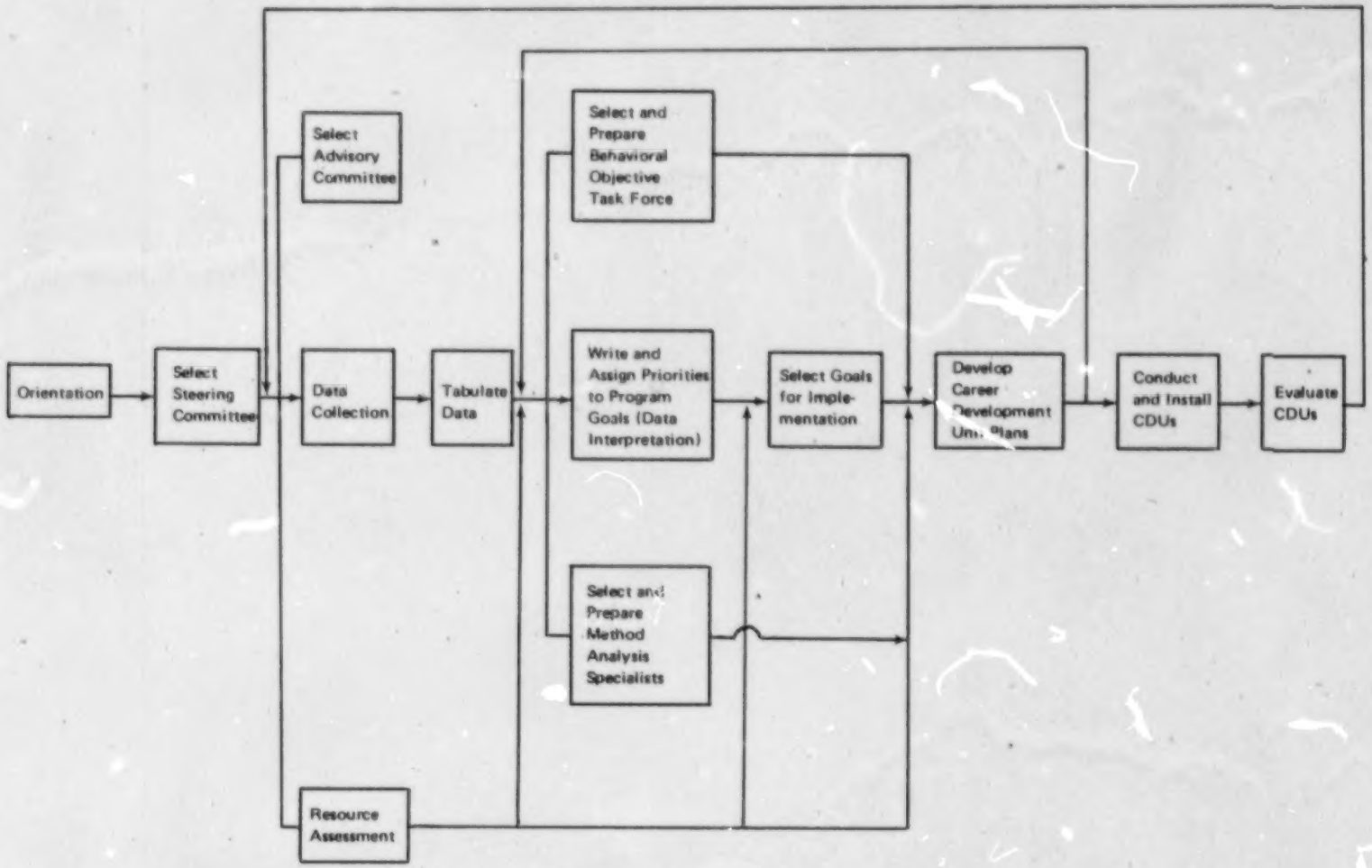
Goals

Identified student needs are translated into goal statements. These goals state the general skills, information, and attitudes students should have in order to choose and develop a career. Goals are derived from information collected in the surveys, state and local educational requirements, career development activities already in the feeder schools, and the school itself.

Career planning activities are designed for students to help them achieve these goals. Resources are needed to implement these activities. Because sufficient resources may not be available to support learning activities for all of the goals immediately, the goals are ranked in order of importance based on available information. Some of the goals are then selected for implementation. Usually resources are laid against the most important goals first, then allocated to other goals as resources become available.

The Advisory Committee reviews the goals, the priorities assigned to them, and the selection of goals for implementation. Recommendations may be made to improve the goals. Finally, the principal reviews and, if appropriate, approves the goals, confirms or assigns priorities, and selects those to be implemented.

Figure 3. Operation Guidance Sequence Flow



Behavioral Objectives

Once goals are selected for implementation, planning begins for the learning activities designed to achieve the goals. A coordinator is chosen to oversee the development and implementation of activities for each goal that has been selected. With the assistance of at least two persons who have attained skills in writing behavioral objectives, each coordinator writes the major behavioral objectives, called criterion objectives, for each goal to be implemented. These objectives state what behavior students who participate in the career planning activities designed for the goal are expected to exhibit after participating.

The scope and complexity of criterion objectives should give some indication of the ways in which students could be introduced to the career planning activities. The objectives may be appropriate for immediate introduction in a regular class. On the other hand, they may be numerous enough to indicate that a separate course is needed to achieve this goal. Exploring alternative strategies is encouraged, both within and outside the existing curricula. Proposed objectives undergo a review process prior to final approval to assure their validity.

Methods

The next stage of Operation Guidance enables a high school to transform plans into action. Although behavioral objectives define what students should achieve, schools have to choose ways for the objectives to be achieved. There are usually many ways to achieve each objective. The task is to choose instructional or counseling methods that are appropriate to the student or groups of students participating in the career planning activities. In addition, the methods chosen should use a school's resources efficiently.

Career Development Units (CDUs)

All goal-related information is collected into a formal plan for a career development unit (CDU) or units. A CDU is an instructional or counseling unit that attempts to achieve one or a logical set of career development goals that have been written for the program. The plan developed for a CDU identifies the behavioral objectives that have been written for each goal, the instructional methods and resources that will be used for each objective, and the manner in which a CDU will be installed into the curriculum. This career development plan is subject to the principal's final approval with interim review by the Steering and Advisory Committees.

Evaluation

Three levels of program evaluation occur on a continuing basis.

1. At the completion of each CDU, the students participating in the activities evaluate the usefulness of the information presented for each behavioral objective and whether the presentation held their interest. The person in

charge of the CDU evaluates the extent to which each behavioral objective of the unit was achieved by the students involved. In addition, a leader summarizes the students' evaluation and describes the advantages and disadvantages of the methods used to achieve each objective.

The information obtained from this evaluation is intended to be helpful in indicating revisions that might be made to increase the effectiveness of the CDU. Adjustment can be made to reflect these changes.

2. An annual review is conducted of all CDUs that have taken place during the year. The result of this review might mean a greater number of students would be involved during the next execution of the CDU, changes might be made in the way resources are allocated, etc.

3. The third level of evaluation accomplished during the process is called recycling. It is designed to make certain that the career planning program continues to be effective in meeting students' needs. The career development needs of students may change over time. Therefore, every two years the surveys are again administered to first- and last-year students of the school, their parents, the school/staff, and recent graduates.

Information reflecting the needs of first-year students and those in the twelfth grade are recorded on graphs each time the surveys are administered (every two years). From these graphs, it can be determined whether student need for a given skill increases, decreases, or remains stable.

Several adjustments in the career development program could result from this information. The priorities assigned to goals could be changed; the list of behavioral objectives for a given goal could be revised; a CDU could be expanded or eliminated.

The Operation Guidance process continues to improve a school's program by increments, developing CDUs as long as unmet needs exist and resources are available to support activities. Evaluation insures the validity of the program as it grows and is used.

VI. RESULTS FOR THE SCHOOL

A variety of outcomes, both short- and long-range, may result from the successful application of Operation Guidance. Of course, the degree to which results become evident is indicative of the degree to which students, teachers, administrators, counselors, and community members become actively involved in Operation Guidance.

These outcomes should be:

1. A display of student career development needs based on surveys.

2. A descriptive record of resources that are available in both the school and community to support career planning activities.

3. A prioritized list of career development goals.

4. A sufficient number of behaviorally stated objectives designed to achieve selected goals.

5. Instructional strategies and methods, called Career Development Units, designed to bring the student(s) to the achievement of a goal or goals.

6. A capability on the part of the school to plan, implement, review, evaluate, and, if necessary, revise career planning activities over an indefinite period of time.

The above results could occur within one school year. There are, however, long-range results that may not become apparent immediately. For instance, after two years of implementation, Operation Guidance could enable you to show whether any career development needs have changed. In time, by effectively using CDUs, the ultimate outcome—reduction of student needs—should become apparent.

VII. THE SCHOOL'S COST

Personnel. Many people should be encouraged to participate in the Operation Guidance project. One advantage of large-scale participation is to keep each individual's time expenditure at a reasonable level. In addition, involving a cross-section of individuals could result in greater faculty and student commitment to the project which could facilitate bringing about change in the school.

The approximate number of positions and the estimated time commitment that incumbents in the positions would need to spend during each year of the project are as follows:

1. Five to seven Steering Committee members (three to five faculty/staff members and two students) at an average of one and one-half hours per week.

2. A school coordinator at an average of 50 percent time.

3. Forty task force members (sixteen to twenty faculty/staff members and eighteen to twenty student members) at an average of two hours per week for eight to ten weeks.

An individual may occupy more than one position. Also, total number of people could be scaled downwards as the number of students in the school decreases from 600.

The supplies and equipment listed below will be needed to use the Operation Guidance package during the first year. Additional expendable supplies will be needed during subsequent years in which the package is used, but at a considerably lower level.

1. Printing (offset or comparable method) – the number of pages will be approximately 8.5 times the number of students in the school.

2. Reproduction – 200 copies.

3. Postage (if surveys are mailed) – approximately $100.

4. Office supplies (excluding paper for reproduction) – two reams of letterhead and 1400 business-size envelopes imprinted with the school's name.

5. Equipment – a 35 mm circular slide projector with remote control and, optionally, a slide-sound synchronizer capability.

This has been an overview of the Operation Guidance product. It is the version derived from many revisions based on experience in six widely distributed high schools. The procedural model remained fairly well intact although some steps or modules were combined for efficiency. The procedures to operate the product in a school were built to accommodate realistic conditions and

constraints. Without the help of the six product engineering schools, the product would not have developed. Once the product was complete, the developers embarked on a two-year national field test of the product which is described in the next section.

VIII. A NATIONAL FIELD TEST

Design and Schedule

Final revisions to the Operation Guidance product were made during August and September of 1974 in preparation for a national field test of the prototypic product. The field test is scheduled to last from September 1974 to June 1976.

Preparation for field testing began in February 1974 with the development of site selection criteria. Given budgetary limitations, it was determined that from ten to twelve states with three to five schools each representatively distributed across the country should constitute the sample. The initial sample was to allow for attrition among the participating states and schools.

Plans called for notifying each chief state school officer, directors of vocational education, and directors of guidance of the pending field test. Twenty-nine states positively responded to the initial invitation. From that group twelve states were selected by May 1974, based on geographical and population characteristics. These twelve states are: Alaska, Arizona, Kentucky, Michigan, Mississippi, Missouri, Montana, New Hampshire, North Carolina, Ohio, Utah, and Washington. Initially, these states identified forty-nine schools to participate in the two-year field test.

Field Test Purpose

It is anticipated that these schools will generate not only useful evaluative data for CVE, but meaningful career guidance activities for their students. Although evaluative data for making final revisions to the program planning and evaluation strand will be collected during the field test, the actual revisions, if needed, will not be effected until the final synthesizing activity of the Career Planning Support System. Once the strands presently being developed are integrated, the whole CPSS product should be available in late 1976.

For the reader who is interested in a more detailed, technical description of the product and its development, A Technical Report of the Product Engineering of a System for Upgrading High School Career Planning Programs is available from Product Utilization Section, The Center for Vocational Education, The Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210.

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APPENDIX A

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APPENDIX B

Operation Guidance Product Elements

1. Steering Committee Handbook

Written in a procedural and systematic way, this document (536 pages) contains information for the management of the planning, implementation, and evaluation of a career development program in a comprehensive high school, grades 9-12. It also includes reference copies of product development elements 3, 4, and 7 through 13, below. Each school receives two copies.

2. Staff Development Handbook

Based upon the use of simulation in learning, this document (500 pages) serves as an instructional tool to assist school personnel to understand the concepts of Operation Guidance and follow the procedural steps in Operation Guidance. It also contains reference copies of elements 4 and 5, below. One copy of this document is provided to each school.

3. Camera-ready Materials

These materials (138 pages) are provided as part of the product so that the consumer can duplicate instruments, forms, tables, and special instructions that will be used in the local educational agency. Two copies are provided to each school.

4. Career Development Data

This data (85 pages) consists of information collected on the school and community; the results of the student, faculty, parent, and graduate surveys; the identification of existing resources, such as equipment, materials, space, people, and finances; and a description of career education programs presently in operation in the school and community. Two camera-ready copies and one loose-leaf binder are provided to each school.

5. Principal's Handbook

This document (50 pages) contains an overview of the Operation Guidance process and describes the Principal's role in the adoption of Operation Guidance, the orientation of Operation Guidance to the faculty/staff, and provides specific tools to assist the Principal in reviewing goals, behavioral objectives, career development plans, and evaluative program decisions. Two copies are provided to each school.

6. Advisory Committee Handbook

This handbook (30 pages) is written to provide personnel in the community serving on the Operation Guidance Advisory Committee an overview of Operation Guidance and contains tools to assist the committee in helping the school plan, implement, and evaluate a career development program. Ten copies are provided to each school.

7. Resource Assessment Procedural Guide

This guide (50 pages) contains procedural steps describing the role of the Resource Assessment Leader and the School and Community Description Task Force in the identification and accounting of resources. One copy is provided to each school.

8. Data Collection Procedural Guide

Specific procedural instructions are provided in this document (43 pages) so that the Data Collection and Tabulation Task Force, consisting of students and faculty, can collect career development data on the needs of students, faculty, parents, and graduates. One copy is provided to each school.

9. Data Tabulation Procedural Guide

This document (64 pages) consists of specific procedural instructions that assist the Data Collection and Tabulation Task Force in translating by hand raw data into meaningful data on provided tables. Ten copies are provided to each school.

10. Behavioral Objective Procedural Guide

This document (30 pages) contains procedural steps to assist behavioral objective specialists (faculty/staff members) to acquire an ability in the writing of behavioral objectives and provides useful techniques in assisting Career Development Unit coordinators and advisors to derive criterion and enabling objectives from goal statements. Six copies are provided to each school.

11. The Behavioral Objective Manual

Based upon the concept of programmed learning and self instruction, this manual (53 pages) defines the parts of a behavioral objective, types of behaviors that could be included in a behavioral objective, the differences between criterion and enabling objectives, and the process of deriving criterion and enabling objectives from goal statements. Six copies are provided to each school.

12. Method Analysis Procedural Guide

This guide (11 pages) consists of specific procedures to assist personnel in reviewing current and available career development methods applicable in their school. Two copies are provided to each school.

13. Career Development Unit Procedural Guide

This procedural guide (22 pages) consists of specific instructions developed to assist school personnel in preparing, implementing, and evaluating a Career Development Unit, defined as an instructional and/or counseling unit that attempts to achieve a career development goal. Ten copies are provided to each school.

14. AV 1, Operation Guidance: An Overview

This is a synchronized slide sound presentation (script included) that describes the Operation Guidance process and the kinds of people that will be involved in planning, implementation, and evaluation. One copy is provided to each school.

15. AV 2, Your Needs and Resources

This is a synchronized slide sound presentation (script included) that provides an overview of resource assessment, including a description of the School and Community Task Force and resource accounting; an overview of the needs assessment including a description of the Data Collection and Tabulation Task Force; and the relationship of resource assessment and needs assessment to the total scope of work. One copy is provided to each school.

16. AV 3, Program Goals

This is a synchronized slide sound presentation (script included) describing the process of writing goals based upon the career development needs of the youth in the school; who writes goals; and the relationship of sound, well written goal statements to the total career development program. One copy is provided to each school.

17. AV 4, Behavioral Objectives

This is a synchronized slide sound presentation (script included) describing the process of writing behavioral objectives that adequately reflect the goal statements; who writes behavioral objectives; and the relationship of good, well written and technically sound behavioral objectives to the total career development program. One copy is provided to each school.

18. AV 5, Career Development Units

This is a synchronized slide sound presentation (script included) describing the process of preparing, implementing, and evaluating Career Development Units; who is involved with Career Development Units; and the relationship of Career Development Units to a unified and integrated career development program. One copy is provided to each school.

19. Operation Guidance

Rubber stamp.

20. Career Guidance, A Handbook of Methods

Campbell, Walz, Miller and Krieger. Two copies are provided to each school.